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ABSTRACT

TVOntario, the television network operated by the Ontario Educational Communications Authority, has been utilizing computer managed learning (CML) in its support of television-based nonformal adult learning projects since 1980. Three of these projects, or academies, have been offered on the topics of health and environment, music and musicians, and parenting. Each of these academies consists of high-quality television programs, specially designed print materials, and the computer managed learning system known as RSVP (Response System with Variable Prescriptions). These three elements in combination allow adults to undertake the academies as self-directed learning projects geared to their level of need. The RSVP system encompasses nine computer programs offering both instructional and management services, which include scoring learners' responses to individualized feedback on their performance, assessment of their comprehension, and diagnosis of learner difficulties. TVOntario makes a major contribution to formal education by cooperating with and supporting the teaching programs and curricula of schools, colleges, and universities in the province. The network also provides educational services to the general public, and conducts needs assessment studies geared to improving the quality and utilization of its programs and fulfilling its mandate to use electronic and associated media to provide educational opportunities for all people in Ontario. Outlines of the three programs noted above are appended. (MES)

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THE USE OF COMPUTER-MANAGED LEARNING FOR MEDIA-BASED INFORMAL ADULT LEARNING

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The Use of Computer-Managed Learning for Media-Based Informal Adult Learning

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TVOntario, the television network operated by the Ontario Educational Communications Authority (OECA), has been utilizing computer-managed learning (CML) in support of television-based non-formal adult learning projects since 1980.

The term "Academy" was applied by TVOntario to these projects. Academies were developed to provide opportunities for adults to engage in systematic and meaningful study of specific subject matter, a learning approach distinct from an ordinary viewing of TVOntario's educationally-oriented cultural and information programs.

Since 1980, three Academies have been offered. The fourth Academy is scheduled to begin in February 1983.

As background to the discussion of the computer-managed learning aspects of Academies, we will first outline how TVOntario came to develop this type of learning project and second, describe its components.

1. The Development of TVOntario's "Academies"

The OECA (Ontario Educational Communications Authority) which operates TVOntario is a broadcasting organization and not an

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* I would like to express my thanks to Mrs. Thelma Rosen, Research Officer at the Office of Development Research for her assistance in preparing this paper.

educational institution per se. It's mandate, as outlined in the legislative act which created it in 1970, is "to use electronic and associated media to provide educational opportunities for all people in Ontario."

TVOntario makes a major contribution to formal education by cooperating with and supporting, through its television programs and related print materials, the teaching programs and curricula of schools, colleges and universities in the Province.

TVOntario also provides informal educational services to the general public by means of its regular broadcasts and associated print material which is available to viewers on request. In addition, TVOntario conducts needs assessment studies, formative and summative evaluations of its programs and market analyses, all of which is geared to improving the quality and utilization of its programs and to fulfilling its mandate.

During the 1970's a number of demographic changes took place in Ontario. By 1980 the proportion of Ontario's population in the 25-64 year age range was almost 50%, whereas in 1971 it had been 45%. By 1991 this age group will comprise 55% of the population. By 1980, one-third of the Ontario labour force had at least some post-secondary education, while in 1974, less than one-fourth had achieved this level.

As we know, the higher a person's educational attainment, the greater the person's demand for further learning. The growing demand for learning in Ontario was reflected in the enrolments at

part-time courses in Ontario universities and colleges. In 1980, there were over 40% more part-time students at universities than in 1972. At community colleges of applied arts and technology, registrations at part-time courses rose by nearly 70% between 1974 and 1980.

A number of initiatives were undertaken by universities to expand access for adults to engage in formal learning, particularly for adults off-campus and/or at a distance from the universities. TVOntario supported these initiatives through television broadcasts of specific series of programs.

TVOntario's own research on the needs and interests of adults in the general public indicated that there was also a demand among a significant segment of adults for non-formal learning of non-traditional subject matter in non-traditional learning institutions. These adults frequently lived at a distance from the educational institution, were home-bound for various life reasons, disliked or feared formal schedules and examinations and exhibited a wide variety of learning goals, interests, and lifestyles.

TVOntario felt that new ideas and efforts should be tried out to meet the needs of this large group of adults and, particularly, to reach them on a personal basis. Through its Ontario network of nine television stations (three more will be in operation by the end of 1982), TVOntario is able to reach approximately 85% of the over 8 million people living in the Province. The normal TVOntario broadcast day is about 16 hours. Programs are also transmitted

through many cable channels across the Province and are available on videotape to all educational institutions, libraries and other non-profit community organizations for a nominal fee. Recently funds have been approved for the installation of low-power television rebroadcast transmitters (LPRT's) in many of the dispersed small communities in the sparsely populated northern area of Ontario. By 1983, up to 170 of these communities will be able to receive the TVOntario signal thanks to Canada's ANIK direct-broadcasting domestic satellites. The potential of TVOntario to reach large numbers of adult learners is very high.

A search began at TVOntario for means which would enable us to meet non-formal adult learning needs without employing, as at educational institutions, a regular staff of teachers, tutors or instructors. It was also necessary to find economic and efficient ways of maintaining continuous contact with learners throughout the duration of the television-based learning projects. A computer-managed learning system was judged to be very appropriate to assist in achieving these goals. The CML system known as RSVP (Response System with Variable Prescriptions) was selected for use and has been used for all the Academies to date. Since 1980, there have been three Academies--the first, the "Health and Environment Academy" (January-April 1980), the second, the "Music of Man Academy" (February-April 1980), and the third, the "Parents' Academy" (January-April 1981, repeated in 1982). A fourth Academy, the "Academy on Computers in Education" is scheduled to begin in February 1983.

2. The Components of a TVOntario Academy

A TVOntario Academy consists of: (a) high-quality television programs; (b) specially-designed print materials; and (c) the computer-managed learning system. These elements, in combination, allow adults to undertake the Academies as self-directed learning projects geared to their level of need.

When an Academy is based on an already existing series of television programs as the Music of Man and Parents' Academies, its preparation requires the cooperation of subject matter specialists, educational designers and systems analysts in a team approach to create the print materials as well as the assignments and prescriptions to be used through the computer-managed learning system. When an Academy entails the production of a new television series as in the "Health and Environment Academy" and the "Academy on Computers in Education" the television producer also becomes a prominent member of the Academy team.

The subject matter specialists, producers and the educational designers determine the major objectives and concepts of the Academy course. These subject matter specialists are selected usually from among university professors and experienced practitioners. TVOntario research staff members are generally the educational designers of the Academy and work with the subject matter specialists to familiarize them with methodologies used in media-based design and structure of learning materials.

(a) The Television Programs

In the Academies, the television programs serve as the initial stimulus for learning. They motivate, stimulate and pace the learner. The television programs cover a well-defined body of knowledge. They are attractive productions of professional quality. For example, the "Health and Environment Academy" programs were produced by TVOntario in cooperation with the Ontario inter-university Educational Council on Health and the Environment. The 14 half-hour documentaries focus on health concerns ranging from processed food to species survival. The issues are discussed from an environmental and interactional perspective which stresses the increasing demands that modern technology has placed on the human body and the role lay people play in health matters.

The "Music of Man Academy" is based on 8 one-hour programs produced by the Canadian Broadcasting Corporation in association with TVOntario and written and narrated by Yehudi Menuhin. The programs provide a unique panorama of the world of sound, and present the musical traditions of five continents with performances by many of the world's distinguished artists.

The 12 thirty-minute programs in the first edition of the "Parents' Academy" were selected from several series produced by TVOntario in the last few years and dealt with the physical and emotional development of normal and atypical children. The documentaries focused on topics of crucial interest to every parent or would-be-parent: socialization, the development of language and communication skills, discipline, play, cognitive development, learning disabilities, values, child abuse, etc.

The "Academy on Computers in Education" will contain 12 half-hour programs produced by TVOntario for this Academy. They convey basic information about computers and highlight those theoretical elements that must be seen to be clearly understood. The programs provide a conceptual model of microcomputers and their functions, explaining how equipment works and fostering critical thinking about their educational applications.

(b) The Print Materials

1. A Learners Guide: The guide describes the overall educational goal of the Academy and pinpoints the educational objectives of each unit of learning built around each of the television programs. The guide also contains the broadcast schedule, details of Academy procedural matters and listings of activities and events around the Province relating to further study of the subject matter of the Academy. Suggestions are offered for various means of expanding one's learning.

2. Readings: These consist of essays especially written by specialists and range from two to fifteen pages. These elaborate on ideas, theories and approaches presented in the TV programs. Bibliographic information and recommended additional readings are included.

3. The Academy Newsletters: During the Academy three newsletters are sent to participants. These provide a vehicle for an exchange of experiences and observations among Academy

participants, resolve unforeseen problems with Academy operations and inform participants of new developments in the subject area of the Academy. Usually two additional newsletters are produced: one of an introductory nature, and the other--to sum up the experience upon the completion of the Academy.

4. Learners' Assignments: These most often take the form of sets of multiple-choice questions which are developed for each unit of learning. They are designed to involve the participants intellectually, to stimulate their curiosity and to sustain their interest. The learners are expected to return by mail the filled out assignment sheets at established intervals. The RSVP computer-managed learning system enables the Academy team to send individualized letters, also by mail, to Academy participants in response to the answers they send in to the multiple-choice questions. These letters provide for on-going personalized contact with each participant throughout the Academy and constitute one of the main elements of the Academy CML system.

(c) The Computer-Managed Learning System

As already mentioned, the CML system known as RSVP is used by TVOntario for the Academies. RSVP (Response System with Variable Prescriptions) was initially developed by the Miami-Dade Community College in Miami, Florida, U.S.A., for their "Open College" external learning program which services a diverse, heterogeneous population with varying proficiency and age levels and varying cultural and ethnic backgrounds.

RSVP's capacity both to manage and administer learning and to enhance and support learning was utilized by TVOntario in the Academies.

Unlike computer assisted instruction (CAI) or computer assisted learning (CAL) whereby the student must sit at a computer terminal or at a microcomputer and interact directly with the computer to receive instruction, RSVP is a computer-based instructional management system, whereby the learner is reached via the printed, or rather, typed-by-the-computer word. The computer, acting on the teacher's instructions, produces a printed feedback in response to the assignments which the learner filled out. This response, usually in the form of a personal letter, can be highly individualized through referring not only to the answers given by the particular learner to a given set of questions, but also to such "attributes" of the learner as, for example, educational background, specific goals in undertaking a given course of study, family situation, occupation, interests, geographic location, etc. The computer-composed letters may be used by the teacher or--as in our case--the Academy team, to instruct, support, motivate, counsel, correct, refer or inform each of the learners throughout the Academy about any aspect related to its content, organization, resource materials or study methods, etc.

The RSVP system encompasses nine computer programs offering both instructional and management services. The instructional service is capable of scoring the learners responses (formal scoring

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U.S. DEPARTMENT OF EDUCATION
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or grading is not used in the case of TVOntario Academies) and prints the "teacher's" responses to students. The management service maintains records on learners characteristics (or, as mentioned earlier, their "attributes"), their performance in the course, and the "teacher's" response to individual learner's performance. Individualized feedback via the "teacher's" response letter to the learners is the primary purpose in using RSVP.

RSVP possesses some unique capabilities in regard to individualizing instruction within the response letters (known as "prescriptions"). While students select only one of five objective response options, each option calls for a varied prescription which RSVP is programmed to accommodate. Two or more questions strategically placed in the course can be used to assess student comprehension and diagnose difficulties. A student's cumulative record can also be used to determine appropriate individualized prescriptions. Time, pre-planning and creative resource personnel are necessary for meaningful designs of instructor-student dialogues but RSVP does have the software potential to engender such dialogues.

The instructional stimulus presented to the students for their responses does not always need to be a question. RSVP at Miami-Dade Community College was used to deal with responses to, for example, a crossword puzzle designed to increase vocabulary; figurative drawings used in a course on stage directing; quotational excerpts designed to test reading comprehension; expressions

of emotional affect in reaction to curriculum material presented, designed to allow students to become more self-aware; representations of counsellor attitudes toward clients, designed for a psychology course, etc.

The combined totality of a student's scores or performance in the responses plus the student's "attributes," when analysed by RSVP, result in increased levels of individualization of prescriptions.*

Needless to say that in order to function properly the RSVP system requires meticulous academic planning. The content of a course of study has to be based on a well-organized structure; each learning unit should have well-stated objectives and well-focused learners' assignments; the multiple-choice questions have to be clearly formulated to take into account the various aspects of knowledge and skills which are to be acquired throughout the course; the variable responses which are being fed to the computer have to be developed in as many versions as necessary to take into account those learner "attributes" which are important at a given course of study.

At TVOntario, when learners register for an Academy they fill out a form which includes their name, address, telephone number, gender, occupation, educational background, interests and learning goals. The RSVP system has the software to maintain this data as

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* The description of RSVP included in this paper is based on materials developed at Miami-Dade Community College. More information on RSVP can be obtained from Dr. Kamala Anandam, Director, Computer Based Instructional Development and Research, Miami-Dade Community College, 11011 S.W. 104th Street, Miami, Florida 33176.

a "personal learning profile" or as personal "attributes" which then is used to tailor the individualized response letters commenting on learners' answers to the multiple-choice questions. The software can be programmed to write prescriptions offering encouragement to tardy learners, or congratulations to eager ones. The system maintains a record of what each learner is accomplishing and at what stage he/she is in the learning process at any given time during the Academy. This is based on whether or not the learner has sent in answers to the multiple-choice questions, on how many sets have been answered and on the content of the answers.

The prescriptions in the individualized letters to learners are written in such a way as to help them clarify the implications of their answers to the multiple-choice questions, to stimulate further thought and inquiry and to guide and direct them to other learning activities where appropriate. The learners' stated learning goals and their personal learning profile as identified from their registration forms are carefully taken into account. The individualized letters also serve the important function of creating a link of "relatedness" between the learner and the Academy staff thus giving the learner a sense of being supported and connected with other learners and with the Academy team in his/her distance learning efforts.

3. Developing a Microcomputer-Based System

The RSVP computer programming used at present by TVOntario can accommodate up to 15,000 students in any single project. It is written in FORTRAN with some Assembly routines, it operates in the "batch" processing mode on an IBM 370/155 OS/MVT computer. It should, however, be noted that the Miami-Dade Community College, in cooperation with TVOntario and several other organizations have undertaken a cooperative venture for the development of a micro-computer-based instructional system which will allow the use of reasonably priced microcomputers for similar modes of computer-managed learning. The new system called CAMELOT* will eventually consist of three subsystems:

a) an interactive subsystem that will eliminate the problems associated with batch-processing skills and allow computer-naive users to set up their course/program in the micro-computer system, manage it in real time, and monitor student progress;

b) an interactive subsystem for the faculty to deliver the individualized instruction to students in the print mode; and

c) an interactive subsystem designed to foster faculty development by providing ready access to "expert" coaching in the essential skills, attitudes, and knowledge needed for conceptualizing and designing a course or program for computer-based instruction.

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* More information about the CAMELOT system may also be obtained from Dr. Kamala Anandam of the Miami-Date Community College.

4. The TVOntario Academy on Computers in Education

The present rapid increase in the use of computers in so many domains of human activity has directed to education a twofold task of preparing students to live and work in a computerized environment and of making effective use of this new technology to improve instruction. Despite a rapid proliferation of computers, and particularly of microcomputers in Ontario schools, the major limiting factor is the lack of knowledge on the part of most teachers as to the capabilities, limitations, and effective use of the new information technology in the teaching/learning process. The available courses and seminars, although oversubscribed, are in no position to provide this knowledge on a scale, breadth, and scope presently needed. To address this need, TVOntario is producing the Academy on Computers in Education. It will be a basic computer literacy course designed primarily for teachers, which will explore the operation and function of computers. It is expected that a considerable number of parents will also be interested in following the course.

More specifically, the Academy will enable its participants to:

- become familiar with the workings of a computer
- operate a microcomputer
- develop one or more simple computer programs
- learn about the various kinds of computer programs being used for educational purposes

- understand basic computer terminology such as cassette, disc, chips, bits and bytes
- evaluate and select software for classroom use
- discover the resources--software, books, magazines, and organizations--that are available to pursue further interest in microcomputers.

The Academy on Computers in Education is designed as an alternative for busy adults who want to learn how a computer works without travelling from their homes to take a classroom course. It includes a 12-program television series, four texts, and continual direction from course developers through correspondence and newsletters, as well as suggested reading lists and information.

In order to provide practical experience, a special hands-on manual has been developed. It includes sample software designed specifically for any of the three microcomputers most popular in Ontario schools: PET, APPLE II Plus, or TRS-80 Model III. The manual has been field tested: individuals who are novices found it most useful in acquiring the skills needed to operate a microcomputer; to load and run programs from disc or cassette; to save, copy, and edit some features of software in the public domain; to evaluate educational programs for use in the classroom; to use the computer as a calculator.

The correspondence connection through the computer-managed learning system will be essential for maintaining contact between the participants and the Academy team. Three rounds of multiple-choice question assignments are planned with appropriate feedback individually to each learner.

The premiere of the 12-week Academy will take place on February 16, 1983. The programs will be broadcast on Wednesday evenings at 9:00 p.m. and repeated on Saturdays at 12:30 p.m. The programs will also be repeated at least twice on a special cable channel accessible to almost one-third of the Ontario population. This channel, named "TVO II," is designed for the repeat of some of TVOntario programs, particularly those of an instructional nature. It is expected that the first round of this Academy will attract about 10,000 registered participants who will pay a fee to cover the cost of the printed materials and the operation of the computer-managed learning system.

5. Evaluation of the TVOntario Academies

The "Health and Environment Academy" and the "Music of Man Academy" were introduced by TVOntario as experimental ventures. The Academy concept was new. There was a relatively short preparation period and minimal effort at advertising and promoting the Academies to the general public. In spite of this, over 700 individuals from across Ontario were attracted as paying participants to these Academies.

For the "Health and Environment Academy" the main evaluation instrument was a 51-item questionnaire mailed to all participants at the conclusion of the Academy. Respondents agreed that the Academy had presented new concepts about health and the environment (78%) and had increased their awareness of health issues (77%).

Ninety percent of the respondents enjoyed receiving the computer-generated response letters. Over 80% found them helpful and 68% found them stimulating. Eighty-two percent of the respondents were satisfied with the organization and administration of the Academy. Three-quarters of the respondents expressed intentions of joining future Academies.

The response to the "Music of Man Academy" evaluation questionnaire resulted in similar findings, i.e., that educational objectives were met to a large degree. Seventy-six percent of respondents felt they knew more about music and musicians after the Academy ended. Seventy percent reported that the Academy experience had led them to appreciate unfamiliar styles of music, as well as to further study. Eighty-seven percent reported satisfaction with the Academy organization and administration. Over 75% of the respondents felt that they benefited from the questionnaire exercise.

The respondents' reported participation in the Academy was very high. Over 80% reported viewing at least half of the programs and two-thirds reported answering at least half of the questionnaires. Findings also revealed that the most common motive for enrolling in the Academy was to learn something and to do it in an enjoyable way. The most common reason for choosing a television-based learning program was convenience. The nature of television-based learning gave the audience a great deal of independence and freedom.

The Parents' Academy, with a somewhat longer "lead time" for development and a stronger promotional thrust, attracted 2,000 participants from across the Province. Because of the subject matter of this Academy, the newsletter was used to a greater extent than in the earlier Academies for contact among participants and to reply to questions most often raised by the participants. For a sizeable majority of participants, the Academy was successful both in encouraging people to think about their behaviour as parents and in offering new knowledge. In addition, of Academy participants who were child-care professionals or workers in the child care field, 60% indicated that they learned some principles they did not know previously. Of parents who participated, 82% expressed interest in joining future TVO Academies. The multiple-choice questions and the computer-generated responses to them were rated highly by both parents and child-care professionals. Eighty-six percent of the professionals found the computer responses meaningful and helpful. Thirty-five percent of parents said they would be behaving differently with their children as a result of having experienced the Academy.

Our evaluation findings have confirmed the viability and validity of the "Academy" concept, including its RSVP component, to be a useful and effective means of delivering distance education to large numbers of learners in an individualized way. One of the most important results has been the development of the Academy course materials. Managed and enhanced by the computer-managed learning system, the materials encourage a systematic effort by the

learner to be spread over a number of weeks. Guidance and pacing are built-in to feed and enrich the learning process and most importantly to give the lonely learner a positive channel for self-expression. We now have strong evidence that a substantial proportion of the Academy participants understand the opportunities which the system provides and that they take full advantage of them. The numerous comments, even those criticizing certain aspects of the Academies, express acceptance and appreciation.

The Academies are a significant achievement in two other important respects. Firstly, they are successful examples of the educational and instructional capabilities of television broadcasting and secondly, the Academies are a form of truly interactive television and, as such, prove that interaction does not always need immediacy.

For reasons based on budgetary and staffing restraints, the Academies have not as yet been able to take full advantage of the instructional capabilities of the RSVP computer-managed learning system. To make this system work to its maximum level requires substantially more time in the course-planning stage than is sometimes possible in the offerings of a broadcast organization. Precise work in setting out the overall objectives of the course, careful decisions regarding the assessment procedures to measure objectives, skill in prescribing learning activities and constant monitoring of the entire learning process is necessary.

Effective though it is, RSVP is not necessarily a total panacea for instructional improvement and does contain certain limitations.

RSVP does not understand natural language. Hence, learner responses for input into RSVP need to adhere to an objective response option format. RSVP evaluates these responses according to the key supplied and prints student letters in relation to those responses. RSVP does not intuitively infer what an instructor might wish to write to a learner and therefore expects a set of prescriptions and commands to specify the conditions under which to print each prescription. In a learning circumstance there is sometimes no need to consider learner responses as right or wrong. This is particularly the case when student feelings, opinions, etc., are elicited in response to academic content. The writing of both the questions and the prescriptions, therefore, needs to be done with extreme care in order to avoid misinformation, ambiguity, confusion and/or over-generalization. The fact that RSVP can deal with no more than five options in a single multiple-choice item can make this writing more difficult. Time, training and experience are required from those people who write the multiple-choice questions and the prescriptions. Another major limitation in utilization of the RSVP system is the cost involved in technically producing and printing the response letters and in maintaining the necessary personnel to do this.

6. Possible Future Developments

TVOntario expects to test the CAMELOT system in 1983 to determine its potential for use with smaller groups of distance learners as well as in classroom situations. The University of San Diego p-system of operations that supports the PASCAL programming language will make the CAMELOT software transportable to several brands of microcomputers in the form of a floppy disc. The ease of handling microcomputers and the fact that, unlike larger computers, micros do not require dependence on professional technologists and systems analysts means that a variety of new learning possibilities might be developed. Educators, course organizers and social animators in educational institutions and organizations such as libraries, continuing education centres, broadcasting companies, etc., could set up, facilitate and monitor learning projects for individual learners or for groups of learners with common interests.

One should bear in mind that unlike CAI or CAL, computer managed learning does not require initial large capital investment to provide access for each learner to a computer terminal or microcomputer. CML which is under the control of the "teacher" makes it economically much easier to put the information holding and analytic capabilities of the computer to work in a variety of educational situations; CML would be especially useful wherever there is a need to better interact with students, to diagnose their problems and to individualize the teaching/learning process.

Other new communications technologies also hold potential to extend the functions of computer-managed learning to a variety of learners. Videodiscs and videotex, such as Telidon, would make learning packages available on a home television screen with possible built-in CML capabilities connecting the learner to courses offered by formal learning institutions. When interactive videotex becomes available to larger parts of the population, teleconferences and electronic message exchange between a TVOntario Academy team and learners, or between any other collective or individual instructor and learners, or among of group of learners, would also be possible for discussions and enhanced learning.

Direct broadcast satellites could be used to broadcast the television component of Academies, as well as information from videotex data bases to learners in remote areas.

The opportunities to expand adult education by means of technology are very great. The aim is to achieve adaptability, flexibility and individualization of learning in situations most suitable for any given target audience.

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1. The Quiver of Life

The sounds of nature, of the animals, even the resonance of inanimate things, together with human apparatus for performing and hearing, have come together in music. Prehistoric discoveries in Russia, the traditions of ancient China, Japan, Sumeria, and the Golden Age of Greece, and the primitive sounds of Africa, are all part of the early story of music.

2. The Flowering of Harmony

From plainchant in several cultures to the glories of Renaissance Venice, this program documents the unique Western contribution of harmony and a reliable notation system through the music of Perotin, Dufay, Cabezon, and Gabrieli.
Throughout this period, music is largely rooted in the church and we see how Hebrew, Moslem, Eastern Orthodox, and Roman Catholic traditions influence the European scene. Ravi Shankar illustrates the single decorated musical line that evolved and was perfected in Indian music.

3. New Voices for Man

From the glories of the Renaissance came a new age of scientific and artistic accomplishment. The development of musical instruments began to challenge the dominance of the human voice, and violin making reached its finest form in Italy, with Stradivari and Guarneri. Lully was the musical giant at the court of Versailles. In England, Purcell was perhaps the first great modern composer, and Handel brought forth works of lasting inspiration. At the same time, colonization was transplanting European music to Africa, India, and the New World.

4. The Age of the Composer

Following the age of Antonio Vivaldi, the focus of music moved north and emphasis turned to the great individual composer - Bach, Mozart, Haydn, Beethoven, Schubert, whose finest works are still the best-loved "serious" music of today. With them came the symphony orchestra and the presentation of concerts and important solo artists performing music for the sake of the music alone.

5. The Age of the Individual

The Romantic era in music was in full flower, continuing its appeal to the emotions through the soaring sounds of Berlioz, Chopin, Liszt, and Bruckner. Europe became industrialized, music was urbanized, and used to aid the rise of nationalist sentiment. Wagner cut harmony loose from its moorings, and the musical traditions of Russia became part of Western culture.

6. The Parting of the Ways

As the world turned into the twentieth century it seemed that everyone was making music. There was a piano in every parlor, Victorian tear-jerkers were heard in the music halls, tone poems in the concert halls. Stravinsky shocked the musical world with Rite Of Spring and Nijinsky the dance world with Debussy's Afternoon of a Faun. In America immigrants brought with them their many musical traditions. And in the midst of this welter of sound and style, the audio recording was invented.

7. The Known and the Unknown

Following World War I in Europe, a revolution in music took place, led by Schoenberg, Berg, and Varèse. In America serious music began to come of age, as exemplified by Aaron Copland, while radio and sound movies were popularizing all forms of music. It was a time of musical giants such as Kreisler, Toscanini, and Stokowski. It

was also a time for the folk traditions of the blues, calypso, and jazz to be incorporated into the mainstream of the world's music.

8. Sound or Unsound

The post-war explosion of music, led by the LP, the transistor, and TV took Western popular music out of jazz into folk and rock, while concert music began experiments with electronics, chance, and process. All the old rules are now questioned. In this program the media career of Glenn Gould shares space with the Javanese gamelan and the Beatles. Yet we move on to our future with many of the old forms of music rooted in the deepest instincts of our nature.

THE HEALTH AND ENVIRONMENT ACADEMY PROGRAM OUTLINE

1. The Art of the Possible

- Although we devote enormous resources to health, no one is really sure what it is.
- However, we do have some deep-seated beliefs about it.
- Serious problems of increasing illness and rising costs exist partly because of these beliefs, including the fact that we are reluctant to see health as an economic and political matter.

2. The Ecology of Disease

- Disease boundaries have changed drastically with modern technology.
- The history of our thinking about disease has led us to an ecological-interactional model.
- Conventional biomedicine married to disease ecology will enable us to cope better with these changes.

3. Learning Health

- Sickness is more than just disease, and it is, surprisingly, partly "learned."
- Two examples of learned symptoms are pain and fatigue.
- There is a "sick role" and special "illness behaviors" that determine how people are sick.
- Behavioral medicine is a new and growing field.

4. To the Human Species

- The "species" perspective and modern evolutionary theory affect how we see "health."
- We are survival machines for "selfish genes."
- Change, change and more change.
- All we have going for us is our flexibility.

- The medical environment offsets our health, and not always for good.
- It has a long history and equivalents in many cultures.
- Limits to its effectiveness are appearing.
- There is a distinction to be made between disease and illness.

6. Lungs

- Lungs are a link between body and environmental systems.
- Disease occurs when the lungs can't handle this link.
- The lung disease problem, like most others, has no single "cause."
- But the major factor is smoking.

7. Taking it All In

- We live in a food environment.
- The effect of modern technology is to deceive our natural protection mechanisms.
- Nutrition can be understood best within an ecological perspective.

8. Making Things

- Man is the tool maker!
- There is an important relationship between work and health.
- There are new technological hazards.
- Is this an inevitable price we pay for progress?

9. Energy

- Health, by any definition, ultimately depends on energy.
- Our sources are in rapid decline so there are choices to make.
- Considering "health efficiency" will help.

10. Another Pollution Program

- Our health depends on equilibrium in our ecosystem.
- The thing we call pollution is a product of change.
- We can anticipate and control it but only if we look at the entire system around it.

11. A Matter of Conscience

- Physicians cannot avoid making human judgments, no matter how fancy their equipment.
- Sometimes the conflict is reduced to quality of existence versus existence itself.
- Unfortunately there is no obvious "right" or "wrong."

12. Health and (Someone Else's) Culture

- Cultural factors influence both health and how we deal with it.
- This influence is most clearly seen by someone from outside the culture.
- Neither patients nor doctors are usually sensitive to it.

13. The City: Resource and Challenge

- The city is our natural habitat and how we adapt to it determines our health.
- It is the convergence of all our "environments" -- we make it, it makes us.
- There may be "urban stress," but there are also urban health resources.

14. Futures

- Change will cause new health hazards -- and opportunities.
- Everything from values to tools will be affected.
- We have a choice (perhaps!) of predicting our future or designing it.

THE PARENTS' ACADEMY PROGRAM OUTLINE

1. Three Families
   Theme - Socialization

   The family is where we first learn about ourselves and relationships. This program examines the social development of children and the various forces that influence socialization. It follows three families, illustrating social, physical, emotional, and moral developments.

2. Feeling Free
   Theme - Emotional Development

   Learning to recognize feelings is important to every person's emotional well-being. Childhood experiences affect how well we deal with our feelings as adults. The significant stages of emotional development from birth to adolescence are explored.

3. Signals, Sounds, and Making Sense
   Theme - Language Development

   Language is a sophisticated and complex method of communication, vital to our survival. This program explores language development and communication skills. It also looks at the role of word play and the effects of early interactions with family and friends on a child's developing sense of identity.

4. Life is But a Dream
Theme - Delayed Language Development

A look at one treatment centre designed to help children who have difficulty learning to talk. Speech therapists and parents who are involved in the Hanen Early Language Parent Program stress that early detection and the prompt introduction of therapy enable children with brain damage, deafness, cerebral palsy, and Down's syndrome to make progress.

5. Body Images
Theme - Physical Development

How do we see ourselves? How do we appear to others? This program takes a look at some of the effects of biology, culture, and self-image on an individual's growth. The benefits of having a healthy body image are traced from birth through the difficult period of adolescence.

6. Changing Limits
Theme - Discipline

An exploration of the development of responsibility and control in children from birth to adolescence, and how parents can develop patterns that are fair to all family members. The necessity of disciplining children from the start is examined, as well as the need for consistency and fairness.

7. Play
Theme - Play

Is there more to play than just having fun? Is play only for children? This program examines play as a child's serious work. Through play, children express their emotions and aggressions, take on imaginary roles, and develop important social skills.

8. Magic of the Mind
Theme - Cognitive Development

This program discusses the importance of creativity, wit, intuition, and fantasy, and compares them with reason and logic, the mental skills our educational system has traditionally stressed. Although knowledge and reasoning skills are important to success, survival depends upon imaginative activities as well.

9. The Invisible Handicap
Theme - Learning Disabilities

The research into the functioning of the brain and the possible underlying causes of learning disabilities has led to a variety of theories and practices. Diet, environmental toxins, drugs, brain function in human behavior, prenatal research and testing are some of the topics examined.

10. A Question of Codes
Theme - Early Identification of Learning Disabilities

How are learning disabilities in children recognized? Two models of early identification and assessment programs used by boards of education in Ontario are presented. Teachers explain their role in assessment and we see a school psychologist administering various tests designed to detect learning disabilities and related problems.

11. A Question of Values
Theme - Moral Development

Although parents are the primary caretakers of children and the primary teachers of values, children also pick up standards from friends, school, church, and, as they get older, their place of work. The focus of the program is on children and youth and the values affecting their moral development.

12. A Twisted Love
Theme - Child Abuse

This program examines the phenomenon of child abuse. It makes clear the traumatic nature of abuse, explores the causes, and describes some of the different kinds of help that are available to abused children and their parents. The observations of a social worker, psychologist, and judge contribute to this examination of the orgins and effects of physical, emotional, and sexual child abuse.

Also available on request:

Complete list of documents available free from the Division
Catalogue of Unesco publications
Sample copy and subscription information on
Prospects, quarterly review of education

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